

Model PS20D630

20 Watt Amplified Horn  
Loudspeaker

Installation and  
Operating Instructions

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## **SAFETY PRECAUTIONS**



### **WARNING**

The warnings listed below may seem to be ridiculously obvious, but please be sure to read *and heed* them carefully before installation and use.

Please observe the instructions in this manual, as the conventions of safety symbols and messages should be regarded as very important.

We recommend that you keep this instruction manual handy for future reference.



### **CAUTION**

- Use only a power supply with the specified output voltage and current, as exceeding the specified limits could result in fire or other failures.
- To avoid accidental air explosions, do not use the unit around gasoline, thinner or other combustibles.
- Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.
- Ensure that the additional weight of any build up of snow or ice on the speaker cannot cause the unit to fall, causing personal injury and/or property damage.
- Be sure to mount the bracket securely, using appropriate fixings. If extreme force is applied to the unit, it could fall, causing personal injury and/or property damage.
- Tighten each fixing securely. Ensure that the bracket has no loose joints after installation, so as to prevent accidents that could result in personal injury.
- Attach a safety wire to the unit when mounting in locations high above the ground. Failure to do so could result in personal injury or property damage if the speaker should later fall for any reason.
- Avoid mounting the unit in locations exposed to constant vibration. The mounting bracket could be damaged by excessive vibration, potentially causing the speaker to fall, which could result in personal injury.
- Avoid installing the unit in excessively dusty locations, or in locations exposed to heaters, solvents, acid, alkali, smoke, or steam, as excessive exposure to these factors could result in speaker failure, fire or electric shock.
- Do not operate the unit for an extended period of time with the sound distorting. This is an indication of an overloaded amplifier, which in turn could cause heat to generate and result in failure of the unit, or possibly even a fire.
- Do not stand or sit on, nor hang from the unit as this may cause it to fall or drop, resulting in personal injury and/or property damage.

## **SYSTEM OVERVIEW**

This amplified horn loudspeaker is designed and manufactured for heavy-duty industrial use. It is finished with a tough, White powder coating, and is supplied complete with a stainless steel, universal “U” bracket, which allows for both horizontal and vertical angular adjustment.

The unit incorporates a preamp, and accepts input levels from 500mV p-p to 3000mV p-p @ 1K $\Omega$ . The input is transformer balanced, which eliminates Ground-loop hum while also providing isolation of at least 500V DC.

It has a built-in 20 Watt power amplifier, which utilises the latest Class “D” technology. This technology allows power amplifiers to operate with a much higher efficiency than conventional classes (typically over 88% in this unit). This means that little power is wasted and therefore little heat is generated.

The unit’s master gain may be set to 12, 18, 24 or 36db by means of an internal switch. There is also an internal volume control for on-site adjustment. This is factory pre-set for the purpose of initial uniformity.

The audio input is factory set to “Balanced”, although unbalanced signals may be used, and an internal selector jumper is provided to allow for either.

In “Balanced” mode, the audio input of the unit is transformer isolated. This prevents “Ground-loop hum” and also provides isolation from the cable of up to 500 Volts DC.

The unit has switchable gains of 12,18, 24 and 36db and is suitable for signal levels ranging from 500mV p-p to 3000mV p-p and has a nominal input impedance of 1K $\Omega$ .

The loudspeaker’s frequency response, dynamic range and dispersion pattern are optimised for the transmission of human speech.

The unit is weatherproof to IP65 rating. If the unit is disassembled during installation or servicing, care must be taken to ensure that glands and gaskets are correctly refitted.

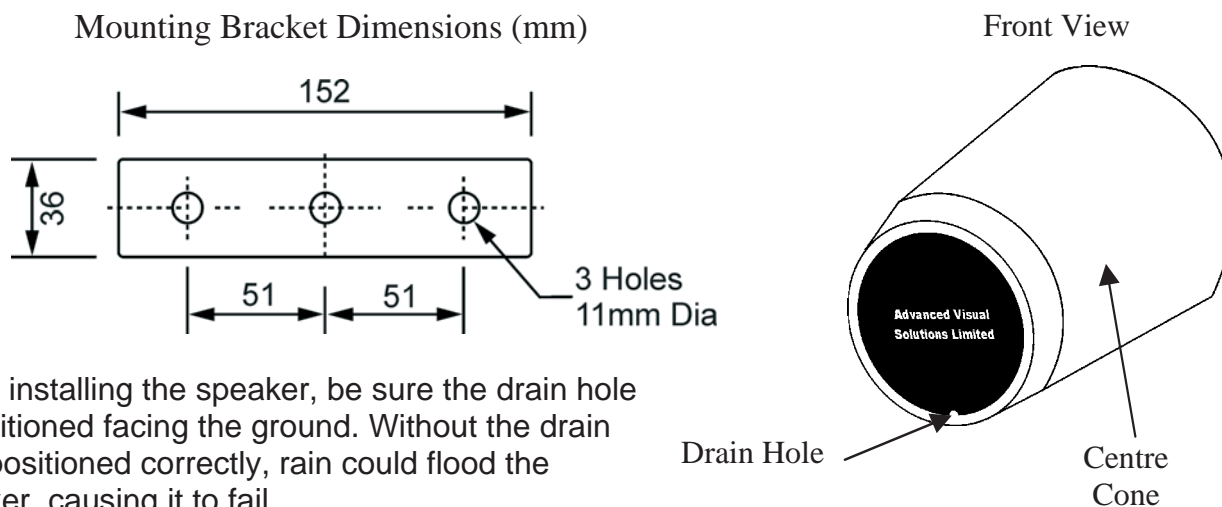
The unit is supplied with a 2 metre flying lead. This is a shielded, 2-pair type cable. During final termination, do ensure that the wiring connections are protected from the ingress of moisture. If the wire terminations are not adequately protected, premature failure of this unit, or other associated equipment is almost certain.

The unit is supplied complete with a switched-mode power adapter. This has a universal input rating of 90 ~ 280Volts AC @ 50 ~ 60Hz and a regulated output of 18Volts DC @ 1100mA.

This unit will operate with a regulated supply Voltage range of 9 Volts DC to 18 Volts DC. Operating at Voltages lower than 18 Volts will reduce the maximum power output (e.g. at 12 Volts DC the maximum power output is approximately 8 Watts RMS).

## **INSTALLATION**

The unit should be mounted where required by means of the supplied stainless steel “U” bracket.



When installing the speaker, be sure the drain hole is positioned facing the ground. Without the drain hole positioned correctly, rain could flood the speaker, causing it to fail

### **IMPORTANT NOTE** : *The power adapter is not weatherproof.*

It should be mounted in a dry area, no more than 10 metres away from the loudspeaker unit.

***Do not apply mains to the power adapter yet!***

Terminate the audio signal and DC power connections to the “flying lead” of the loudspeaker unit.

***Ensure that the chosen termination method is waterproof!***

**The cable type we recommend is BELDEN TYPE 8723 or equivalent.**

The connections are as follows:-

### **BALANCED-LINE INSTALLATION**

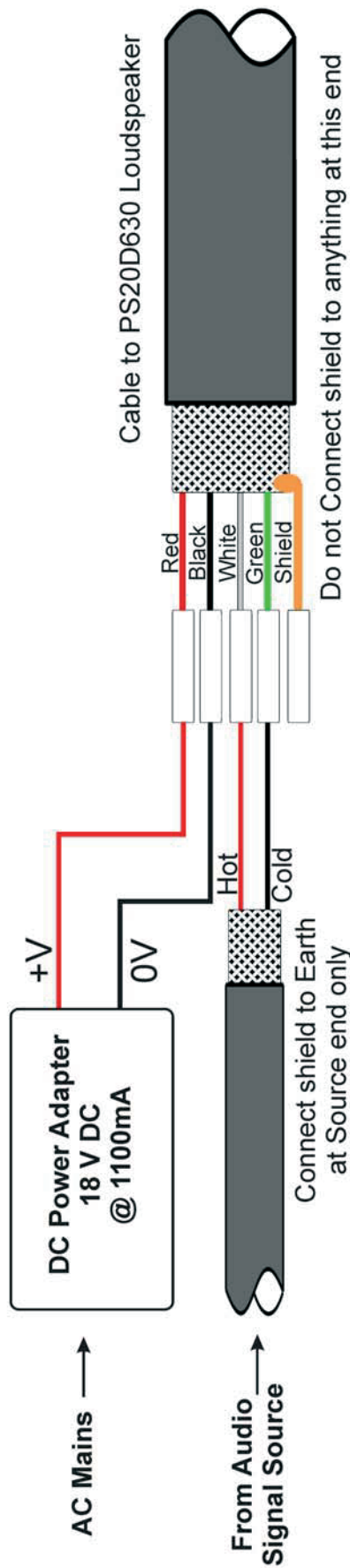
Wire Colour	Connect To
RED	+18VDC
BLACK	0VDC
WHITE	Audio Signal HOT
GREEN	Audio Signal COLD
SHIELD	Do not connect (Earth at signal SOURCE end)

### **UNBALANCED INSTALLATION**

Wire Colour	Connect To
RED	+18VDC
BLACK	0VDC
WHITE	Audio Cable Signal Core
GREEN	Loop to SHIELD
SHIELD	Audio Cable Screen

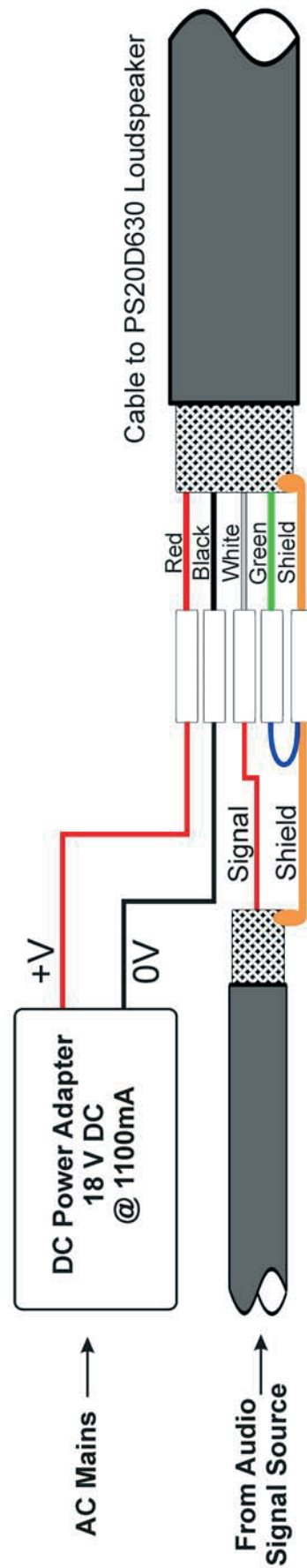
***See following sample drawings***

## TYPICAL WIRING FOR BALANCED AUDIO SOURCES (2 WIRES + SHIELD)



**IMPORTANT NOTE : Ensure that the link "J1" on PCB inside loudspeaker unit is OPEN.**

## TYPICAL WIRING FOR UNBALANCED AUDIO SOURCES (1 WIRE + SHIELD)



Connect shields of both cables and insert **wire loop** between shield and Green wire from loudspeaker unit as shown above **OR** connect link "J1" on PCB inside loudspeaker unit (see following text).

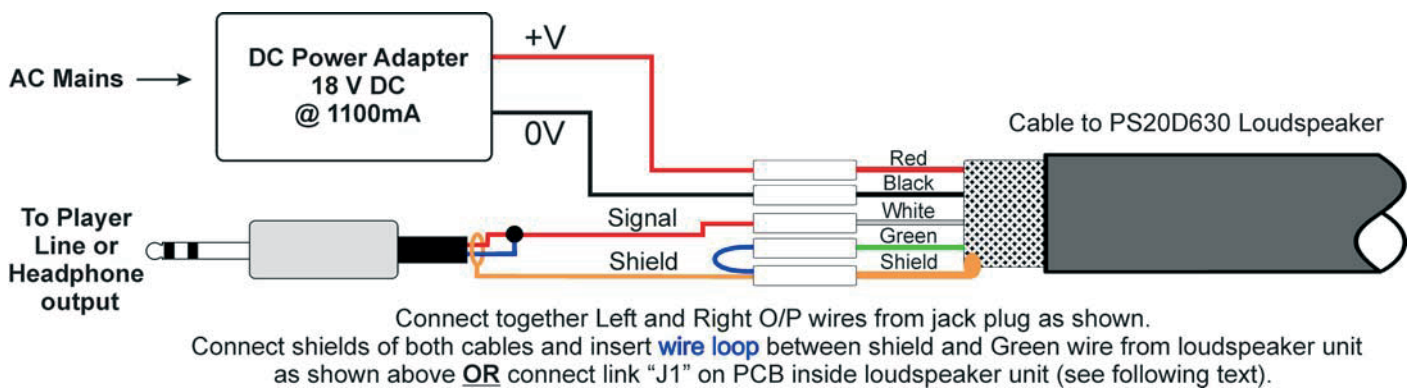
## Testing and Adjusting

Adjust the vertical and horizontal angles of the loudspeaker unit so that it “points” in the required direction.

Ensure that there is an audio signal source applied to the loudspeaker unit. This may be either the source audio which is ultimately to be used in the system, or, for test purposes only, you may use any audio device with a “Line Output” or a “Headphone Output”.

If using the latter, a sample wiring drawing appears below.

### **Example Wiring For Using Personal Stereo To Test Amplified Loudspeaker**



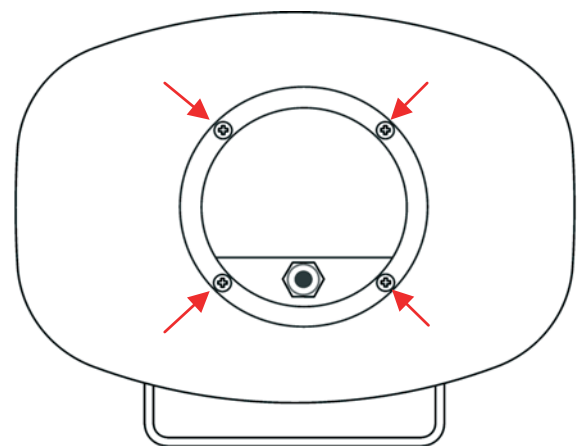
Switch on the AC power to the loudspeaker’s power adapter and audio should be heard from the loudspeaker.

When the system is fully operational, you should adjust the gain of the amplifier module, and/or the volume control, to give the ideal output level. The gain and volume controls are on the PCB inside the back cover of the loudspeaker unit (see drawing on next page)

These should be set during commissioning, using the audio from the system’s source device.

Remove the four screws which hold the rear cover in place (shown on the right).

Carefully remove the cover. Take not to lose the screws or gasket and do not pull on the internal wiring.



**Rear View**

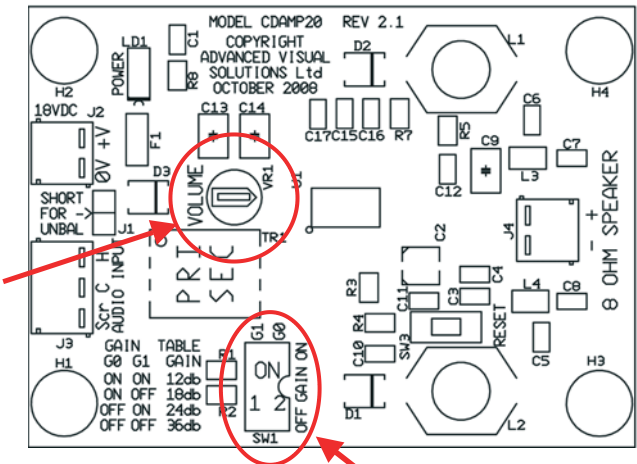


**To Set the Gain and volume level of the amplifier module.**

1/ Remove the back cover of the loudspeaker.

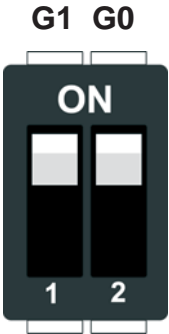
On the PCB inside there is a 2-way DIP switch marked “SW1” (Gain).  
Set both of these switches to “ON”. This sets the module to minimum gain (12db).

2/ Adjust the volume control (anti-clockwise for volume down or clockwise for volume up) until the output level is adequate. If the output level is insufficient, set the gain to the next highest gain, according to the following table, and repeat the procedure with the volume control.



This may be done at all gain settings, until an adequate output level is **just** achieved.  
Setting the **gain** to the minimum required will minimise any unwanted noise pickup.

GAIN	G0	G1
12db	ON	ON
18db	ON	OFF
24db	OFF	ON
36db	OFF	OFF



That’s it! You may now replace the rear cover. As this speaker unit is weatherproof to IP65, care must be taken during the replacement of the back cover, to ensure that glands and gaskets are correctly refitted and watertight.